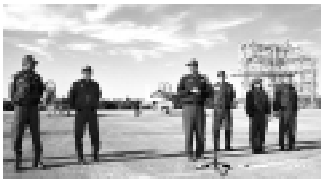


## MISSION UPDATE

## STS-87



**STS-87 crew:** Mission Specialists Winston Scott (left) and Takao Doi; Commander Kevin Kregel; Payload Specialist Leonid Kadenyuk; Mission Specialist Kalpana Chawla; and Pilot Steven Lindsey arrived at KSC's Shuttle Landing Facility Nov. 16 as final prelaunch preparations got under way. At press time, 2:46 p.m. EST, Nov. 19, remained the scheduled launch time.

## OV-104 Departure



**Second OMDP:** Atlantis (OV-104) heads to California atop the 747 Shuttle Carrier Aircraft Nov. 11 to complete its second Orbiter Maintenance Down Period. OV-104 will undergo about 120 modifications, including the addition of a Global Positioning Satellite system.

## Shuttle-Mir



**Smooth sailing:** Scientific research and routine maintenance are under way on the Russian Space Station Mir. U.S. astronaut David Wolf is about halfway through his four-month stay. During recent spacewalks, Commander Anatoly Solovyev and Flight Engineer Pavel Vinogradov installed a new solar array and a device that allow the hookup of an additional carbon dioxide removal system. The excursions were the 13th and 14th spacewalks for spaceflight veteran Solovyev.



# Spaceport News

*America's gateway to the universe. Leading the world in preparing and launching missions to Earth and beyond.*

John F. Kennedy Space Center

## X-33 achieves major milestones

The X-33 advanced technology demonstrator has completed several major milestones on the path toward becoming a flight-tested vehicle.

On Nov. 4, NASA completed its work on the Environmental Impact Statement, completing a 12-month process.

Only days earlier, the program completed a Critical Design Review (CDR) that cleared the way for fabrication of all remaining components, completion of subsystems and assembly of the subscale prototype launch vehicle.

The same day, Oct. 31, the linear aerospike engine began flight testing in subscale form on an SR-71 aircraft.

On Nov. 14, the official groundbreaking took place at Edwards Air Force Base for the 25-acre launch site. It is located on the east end of the base, near Haystack Butte.

The five-day CDR at Edwards Air Force Base marked the culmination of 51 component and subsystem CDRs begun in January. The review also served as an opportunity for program officials to announce resolution of issues that arose earlier this year regarding vehicle weight and aerodynamic stability and control.

The SR-71 test was called



SR-71 (right) refueling in-flight during Oct. 31 flight test. After refueling, the SR-71 with the piggyback LASRE experiment climbed to a predetermined altitude and the linear aerospike thrust cells fired for inflight data collection.

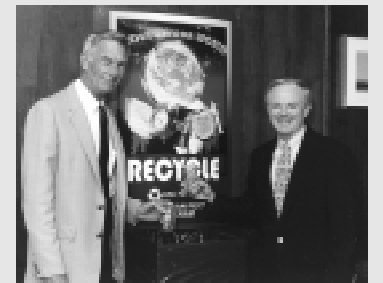
## From Open House ...

EMPLOYEES and their families braved autumn winds to visit the space center for the 1997 Open House which included the Shuttle Carrier Aircraft at the KSC landing strip. More photos are on Page 4.



## ...To aluminum can recycling

INSTALLATION Operations Director Marv Jones (left) and Center Director Roy Bridges kicked off a new environmental initiative to recycle aluminum soda cans. The effort began Nov. 7 at 100 KSC sites.



the Linear Aerospike SR-71 Experiment (LASRE) and featured a one-tenth-scale, half-span model of the X-33. The model contained eight thrust cells of an aerospike engine. LASRE is designed to gather data on the aerospike's exhaust plume as it travels through the transonic region of flight.

Approximately 100 workers will construct the \$30 million Haystack Butte launch facility, with work scheduled to be completed in a year. Sverdrup Corp. is overseeing construction of the facility. Site plans include a retractable vehicle shelter and a rotating vehicle launch mount.

## '97 CFC fund drive tops goal

KSC civil service employees showed their generosity in this year's Combined Federal Campaign, surpassing the targeted goal of \$200,000 by more than \$35,000 in pledges.

More than 90 percent of the civil service workforce donated to the fund drive, which was one of the most successful ever.

"I want to personally thank each employee who gave to these most worthwhile charitable organizations," said Center Director Roy Bridges Jr. "You rose to the occasion and showed once again that we are a world-class organization and that we truly 'Combined for Caring.'"

To show their thanks, senior managers have invited all NASA employees to a victory celebration picnic Dec. 2 at KARS II from 11 a.m. to 1 p.m. Lunch will be served by the senior management team.

## Trafton to leave NASA in December

Associate Administrator for Space Flight Wil Trafton has announced plans to leave the agency in December.

Trafton has been the space agency's top official for human space flight since March 1996. During his tenure, the Space Shuttle has safely and successfully flown 13 missions, and the International Space Station has moved from planning to the production of almost a quarter of a million pounds of flight hardware.

Trafton came to NASA as

director of the space station program in January 1994. He said he would announce his future plans at a later date.

"I have been enormously privileged to lead this terrific team of talented people who make up the wide range of programs represented by the Office of Space Flight," Trafton said. "I could not be prouder of my association with them, or of the work we have done together."

NASA is proceeding with the search for a successor.

## MILA manager retires after 31-year career in the space program

MILA (Merritt Island Launch Area) Glenn Smith retired Oct. 31 after a 31-year stint in the space program.



Smith

Smith was one of the early Manned Space Flight Network (MSFN) space trackers, beginning his career in 1962 at Owings Mill, Md.

He then worked at a variety of locations both in the continental United States and overseas, including Canary Island, Spain; Ascension

Island, United Kingdom; California and Alaska.

He moved to Florida for a second time in 1986 and most recently served as senior manager for Allied Signal Technical Services Corp. at MILA, which provides voice and data communications capability between the Shuttle and Mission Control during ascent. His responsibilities also included the Ponce De Leon Inlet Tracking Station.



JOHN Tinsley (left), representing the NKMA Scholarship Committee, accepts a check for \$500 from tournament director Jim Nary (center) as NKMA President Miguel Rodriguez looks on.

## NKMA tennis tournament benefits scholarship fund

The NASA Kennedy Management Association held its first tennis tournament Oct. 6-17 to raise funds for the NKMA scholarship fund. Held at KARS II, the tournament generated \$500 for the scholarship fund.

"The willingness of so many players to help set up the tournament, participate in the

actual play and be flexible in scheduling matches under this playing format resulted in the tournament being a success," noted tournament organizer Jim Nary. "Also noteworthy was the participation by NASA civil servants, contractors and even an Italian national TDY at KSC for the Cassini launch," he said.

## Honeycutt moves up at Lockheed

Former KSC Director Jay Honeycutt has been promoted from executive vice president to president of Lockheed Martin Space Mission Systems & Services in Houston.

Honeycutt joined the Lockheed unit in May. Its

5,000-plus employees provide a variety of services to six NASA centers, including Johnson Space Center, where it supports Mission Control, human life sciences as well as the Shuttle and International Space Station.

## Jupin departs USA-Florida

Bud Jupin, vice president and associate program manager of United Space Alliance Florida Ground Operations, resigned Nov. 3.

Jupin succeeded Mike McCulley as head of USA Ground Operations in July. He previously was vice president of Safety and Mission Assurance at USA Headquarters in Houston. He

joined United Space Alliance in April 1996.

Vice President Ed Adamek, who also served under McCulley, has been named acting associate program manager reporting to Program Manager Howard DeCastro in Houston. A senior management committee has been established to determine a successor.

## Honoring the first Americans



KSC NATIVE American Intertribal Council sponsored a Pow Wow Nov. 3 at the KSC Visitor Complex. Native Americans clad in tribal dress entertained visitors against the backdrop of the Rocket Garden, creating a compelling scene. Visitors also listened to story-tellers and enjoyed Native American food.

## NAL chapter installs new officers

The Florida chapter of the NASA Alumni League (NAL) installed a new board of officers for the coming year during its Sept. 16 meeting.

Norris Gray will serve another term as chapter president. Rounding out the

board were: Bill Martin, vice president; George Moskowsky, treasurer; and Mary King, secretary. The chapter offers a variety of services and activities. For more information contact Norris Gray, tel. 407 254-2161.



STS-85 MISSION Commander Curt Brown (left) signs autographs in the KSC Training Auditorium during the crew's return visit to KSC Nov. 5

## Six Snoopys awarded in October at KSC

Six KSC employees were honored with the prestigious Silver Snoopy award in October:

Syd England, Science Applications International Corp.;

Lance Borman, Sally Hill and Ann Foderousky, United Space Alliance; and

Dwayne Wilson and Mike Lankes, USBI.

The Silver Snoopy award was created by the astronauts to honor those who contribute most to the safety and success of human spaceflight.

In other Space Flight Awareness program activities, KSC was visited recently by the STS-85 astronauts, who returned to thank workers for making their mission a success.



## Mars Pathfinder mission comes to a close

Mission managers are bidding farewell to the Mars Pathfinder after communication attempts the past month have failed. The spacecraft operated three times longer than expected and gathered a wealth of data.

The Pathfinder lander's main battery was depleted and attempts to contact the lander via its main and secondary transmitters were fruitless, making it impossible to command the lander or the Sojourner rover that had been traversing the Martian terrain.

Since it landed on Mars July 4, Mars Pathfinder returned 2.6 billion bits of information, including more than 16,000 images from the lander and 500 images from the rover, as well as more than 15 chemical analyses of rocks and extensive data on winds and other weather factors.

## European Spacelab support contractors honored

Eleven European contractors who maintained Spacelab maintenance depots overseas were honored at KSC in November.

After the first Spacelab mission flew in 1983, the need became clear for an integrated space flight hardware system at repair depots in Europe.

The resulting depot maintenance system was established in 1984 and became operational in 1985. It continued to function through February of this year, when it was phased out as the Spacelab program winds down.

REPRESENTATIVES from seven of the 11 European Spacelab depot maintenance contractors gathered for a group portrait in the Operations and Checkout Building Mission Briefing Room on Nov. 10. NASA and contractor officials thanked the Europeans for their support of the Spacelab program over the years.



At the final Spacelab European Depot Maintenance System (EDMS) Technical Interchange Meeting (TIM) Nov. 10-12, the 11 contractors were honored for their long and successful support of the depots. Representatives from seven companies were present.

Top NASA and contractor officials, including Launch and Payload Processing Deputy Director Loren Shriver and retired McDonnell Douglas executive George Faenza, thanked the contractors for their support at a banquet Nov. 12.

## Spacecraft yield insights into solar system

Three exploratory spacecraft — Galileo, the Solar and Heliospheric Observatory (SOHO) and the Rossi X-ray Timing Explorer (RXTE) — are providing new data about our solar system.

Galileo captured images five months apart that reveal a new dark spot the size of Arizona on Jupiter's moon Io, indicating dramatic volcanic activity.

It is the largest surface change on Io observed by Galileo during its entire two-year tour of the Jovian system. Io is the most volcanically active body in the solar system.

It is composed primarily of silicates, the same type of volcanic rock found on Earth, but its high volcanic activity may have led to silicate compositions unusual for Earth.

SOHO may have gathered data that could solve a 55-year-old mystery. Co-sponsored by the European Space Agency, SOHO has gathered observations that help explain the very

high temperature of the sun's corona, the outermost layer of the Sun's atmosphere.

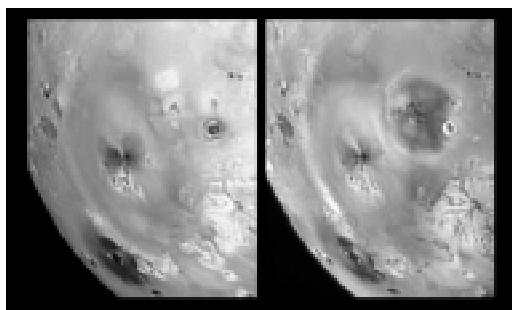
Since the corona's temperature was first measured 55 years ago, scientists have lacked a satisfactory explanation for why that temperature is three million degrees while the visible surface of the sun is only 11,000 degrees Fahrenheit.

Magnetic energy is apparently being transferred upward to heat the corona to its known temperature.

RXTE has observed a phenomenon called "frame dragging," first predicted in 1918 using Einstein's theory of relativity.

In frame dragging, a black hole — a very massive object with a gravitational field so intense that not even light can escape it — is literally dragging space and time around itself as it rotates.

Researchers studied variations in X-rays emitted near the suspected black hole and found evidence of frame dragging.



IMAGES of Jupiter's moon Io taken five months apart show the development of a dark spot (upper right) the size of Arizona. The spot is about 249 miles in diameter, surrounding a volcanic center named Pillan Patera after the South American god of thunder, fire and volcanoes. Dark features at the center may be new lava flows. The Galileo spacecraft continues to perform flawlessly as it begins a two-year mission extension.

# KSC opens its doors for 1997 Open House

The KSC Employee Open House Nov. 8 drew a robust crowd of more than 33,000 people, making it one of the most successful ones ever.

Center Director Roy Bridges, who was attending his first open house since becoming KSC director, visited many areas.

Afterwards he noted, "I was very impressed with the thought and work which went into each area. All of the people who worked on the Open House did a superb job with exhibits and demonstrations. They illustrated the complexity and importance of their work in a way which everyone could understand."

The Launch Control Center logged more than 17,000 visitors to rank as the most popular site in the Launch Complex 39 area.

In the Industrial Area, the Space Station Processing Facility attracted the largest crowd, about 5,000 people.

"I would like to compliment everyone who worked on the Open House," Bridges said. "It is very important that our families feel a part of the work we do here. Your efforts helped us accomplish that goal. I heard many of you speak with pride about your work to your friends and families. Well done!"

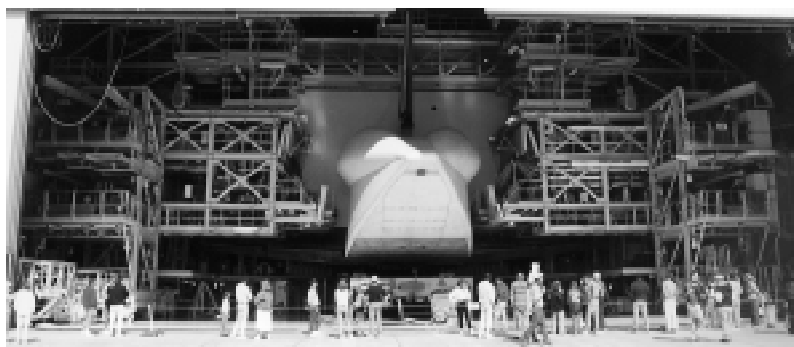


SHUTTLE Carrier Aircraft awaiting the orbiter Atlantis and a transcontinental flight drew a large crowd of about 10,000 people to the Shuttle Landing Facility.



ABOVE —Kate (center), Rachael and Evan Shields learn about astronaut space suits from Richard Burns (left) of Boeing. Below, a tail cone-clad Discovery drew visitors to Orbiter Processing Facility Bay 2 in the Launch Complex 39 area.

RIGHT —NASA's Elisa Artusa (left) shows visitors around the Checkout and Launch Control System prototype area in Firing Room 2 of the Launch Control Center. Below right, EG&G Florida worker Carmel Shearer shows several young visitors around the fire trucks at Fire Station 2.



VISITORS to the Space Station Processing Facility saw the Node 1 for the International Space Station in its processing stand in the high bay.



John F. Kennedy Space Center

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